

NOTES ON *GERYON* FROM BERMUDA, WITH THE
DESCRIPTION OF *GERYON INGHAMI*, NEW SPECIES
(CRUSTACEA: DECAPODA: GERYONIDAE)

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Abstract.—Two species of the deep water crab genus *Geryon*, taken in commercial traps, *G. fenneri* Manning and Holthuis and *G. inghami*, n. sp., are reported from Bermuda. *Geryon incertus* Miers, 1886, originally described from Bermuda, is shown to be a junior synonym of the portunid *Bathynectes longispina* Stimpson, 1871.

Commercial trapping operations in depths in excess of 400 fathoms (732 m) around the Bermuda Islands [32°20'N, 64°45'W] by John P. Ingham in 1984 have revealed the occurrence of two distinct species of *Geryon*. One of these, *G. fenneri* Manning and Holthuis, 1984, was originally described from localities around Florida. The second species proves to be undescribed and is named below. Luckhurst (1985) has provided a preliminary account of the fishery.

There are two previous records of a species of *Geryon* from Bermuda. The first is that by Miers (1886:224), who described *Geryon incertus* from an immature specimen taken off Bermuda. As both Chace (1940:39) and Manning and Holthuis (1984:666) pointed out, the status of Miers' species has remained uncertain since its description. We believe that *G. incertus* is the juvenile of a portunid described by Stimpson in 1871, *Bathynectes longispina*. Although adults of *B. longispina* have not yet been recorded from Bermuda (Markham and McDermott 1981), we provide records of adults taken in traps off Bermuda.

The second record was given by Markham and McDermott (1981), who included *G. quinquedens* Smith in a checklist of Bermuda decapods. We tentatively identify their material with *G. fenneri*, as we have found neither records in the literature nor material of *G. quinquedens* from Bermuda.

Species of *Geryon* from Bermuda

Geryon fenneri

Manning and Holthuis, 1984

Figs. 1a, 2a

?*Geryon quinquedens*.—Markham and McDermott, 1981:1274 [not *G. quinquedens* Smith, 1879].

Geryon fenneri Manning and Holthuis, 1984:666, figs. 1, 2a, b, 3a-c, 4a, b.—Soto, 1985:482, 483, 486, 487.

Material.—Off Bermuda [32°20'N, 64°45'W], 430-450 fms (787-824 m), traps, Oct 1984, John P. Ingham, Eugene Lambe, R. B. Manning, D. L. and J. Felder, and B. Luckhurst, collectors, from vessel *Trilogy*: 2 males, 8 females (3 ovigerous), 3 dry carapaces (USNM 205334, 205335; 2 females to Rijksmuseum van Natuurlijke Historie, Leiden; 2 females to British Museum (Natural History), London).—Off south shore of Bermuda, 500 fms (915 m), 5 Nov 1984, John P. Ingham, collector: 1 male (USNM).—Same, ca. 550 fms (1007 m), 27 Dec 1984: 1 male, 1 female (USNM).—Off Bermuda, 1985: 2 females (1 with sacculinid) (USNM).—Same, 1985: 8 males, 10 females (2 ovigerous) (USNM).

Measurements.—Carapace lengths (cl) of examined males 57 to 160 mm, of non-ovigerous females 68.5 to 116 mm, of ovigerous females 91 to 118 mm, of unsexed

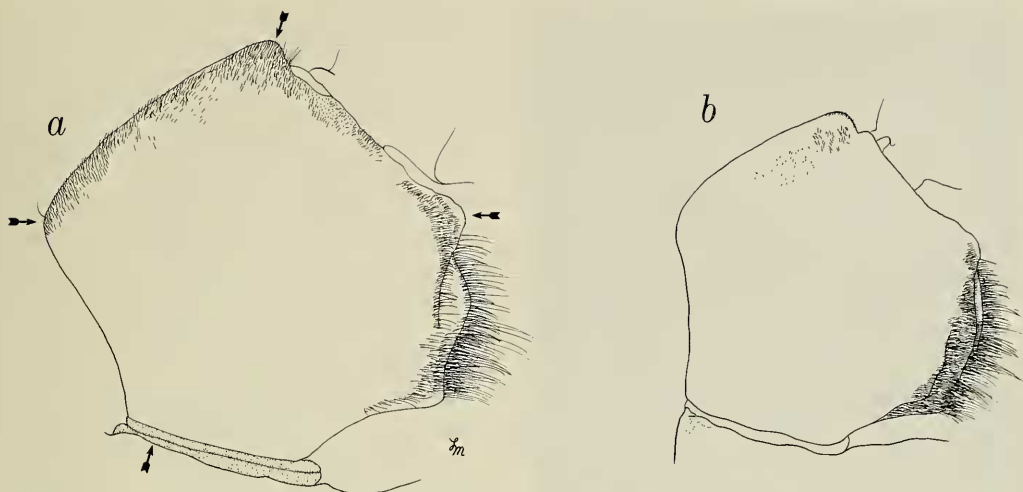


Fig. 1. Merus of third maxilliped of: a, *G. fenneri*, male, cl 160 mm, Bermuda (arrows indicate points of measurement of height and width); b, *G. affinis*, male, cl 134 mm, off Scotland (USNM 210904).

dry carapaces 97 to 98 mm. Carapace widths (cb) of examined males 81 to 190 mm, of non-ovigerous females 89 to 146 mm, of ovigerous females 113 to 146 mm, of unsexed dry carapaces 121 to 124 mm.

Luckhurst (1985) reported that 73 specimens examined by him in October and November 1984 had carapace widths ranging from 108 to 177 mm, and that all of the largest crabs he examined were males.

Remarks.—These specimens agree well with the original account. The carapace length ranges from 0.76–0.84 times the width. The distance between the first and third anterolateral teeth of the carapace is 0.93 to 1.10 times the distance between the third and fifth anterolateral teeth. The orbit is narrower than the front in most specimens. On the fifth leg, the merus is about half as long as the carapace and its length is 4.1 to 5.1 times its height; and the propodus is 3.5 to 4.3 times longer than high.

The third maxilliped of the largest male (cl 160 mm) differs from that of *G. affinis* A. Milne Edwards and Bouvier (male, cl 134 mm), from off Scotland, as shown in Fig. 1. In *G. affinis* the merus of the third maxilliped is slightly longer than high,

whereas in *G. fenneri* it is slightly wider than high. The outer angle differs in the two species.

As we noted above, we tentatively assign Markham and McDermott's (1981) record for *G. quinquedens* to this species, the more abundant of the two species of *Geryon* now known with certainty from Bermuda.

Soto (1985) reported this species from the Straits of Florida, on mud bottoms in depths of 322 to 470 m. He characterized it as one of the species taken only on the continental side of the Straits.

Geryon inghami, new species

Figs. 2b, c, 3, 4, 5a

Material.—Off Bermuda [32°20'N, 64°45'W], 1400 fathoms (2562 m), traps, summer 1984, John P. Ingham, collector: 2 males, 1 female (USNM: largest male is holotype, USNM 205336, other specimens are paratypes, USNM 205333); 2 males (Rijksmuseum van Natuurlijke Historie, Leiden, paratypes); 1 male (British Museum (Natural History), paratype); 5 males (Bermuda Division of Fisheries, paratypes).—Bermuda, off south shore, 500–550 fms (915–

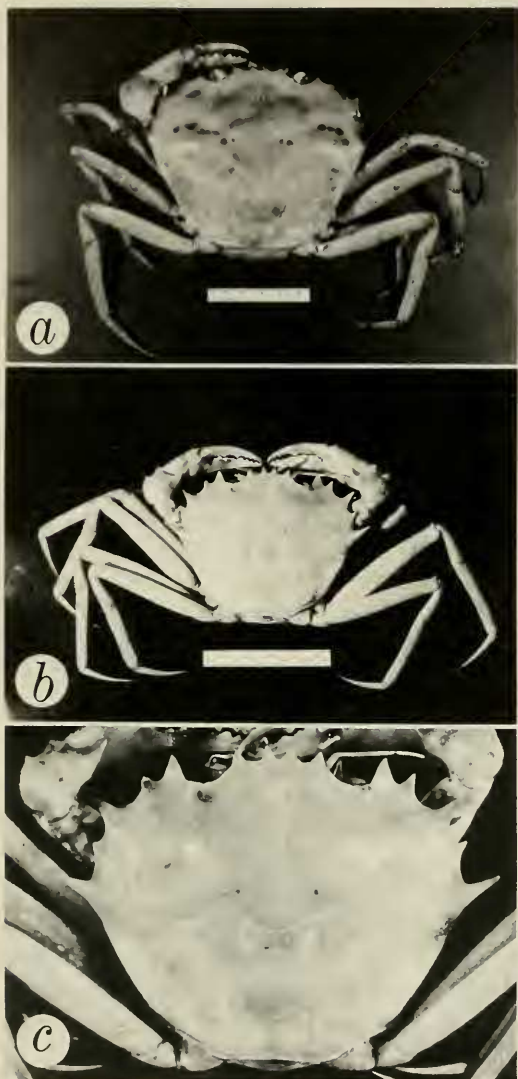


Fig. 2. Dorsal view of: a, *G. fenneri*, ovigerous female, cl 91 mm, Bermuda; b, c, *G. inghami*, male holotype, cl 64 mm, Bermuda (carapace enlarged in c to show detail).

1007 m), 25 Feb 1985, J. P. Ingham, collector: 1 male (paratype, USNM 228196).—Off Bermuda, 1985: 1 male (USNM 228197, paratype).

Diagnosis.—A small *Geryon*, cl to 82 mm in adults. Carapace broader than long, length 0.68 to 0.77 (mean 0.72) times width. Median pair of frontal teeth large, overreaching

larger lateral frontal teeth, separated by median V-shaped sinus, latter usually posterior to level of acute, pointed lateral frontal teeth. Distance between submedian frontal teeth variable, usually more than half distance from each to lateral frontal tooth, but much less in largest male. Anterolateral teeth 5, first, third, and fifth strongest, second and fourth smaller but well developed, all sharp. Distance between first and third teeth subequal to distance from third to fifth (less in some specimens, more in others). Suborbital spine large, extending to level of apex of lateral frontal teeth. Carapace with curved ridge extending mesially from lateral tooth. Posterolateral margin of carapace irregularly granular. Cheliped rather rough, surface distinctly granular, with sharp subdistal and smaller distal spine dorsally on merus; carpus with distinct outer spine, anterior margin with small, sharp granules and large inner spine; propodus with distinct dorsal spine. Meri of second to fifth pereopods with distinct distal dorsal spine. Fifth leg: merus slender, length 6.1 to 6.9 times height, with erect distal dorsal spine; carpus with distinct line of granules dorsally; propodus slender, length 5.5 to 6.0 times height, with sharp dorsal granules proximally; dactylus 0.74 to 0.87 times as long as propodus, compressed laterally, height at midlength greater than width, longitudinally channelled dorsally. Telson triangular, 1.3 to 1.6 times broader than long. Gonopod as figured.

Size.—Carapace lengths of males 40 to 82 mm, of single female examined 44 mm; carapace widths of males 55 to 110 mm, of female 64.5 mm.

Color.—In life this species is dark red.

Remarks.—*Geryon inghami* shares many features with *G. gordonae* Ingle (1985:90) from the northeastern Atlantic, but a comparison of specimens from the two areas reveals that *G. inghami* differs as follows: overall the body is much more coarsely granulated, especially on the chelae and the anteroventral surfaces of the carapace; the suborbital teeth are stronger, and there is a

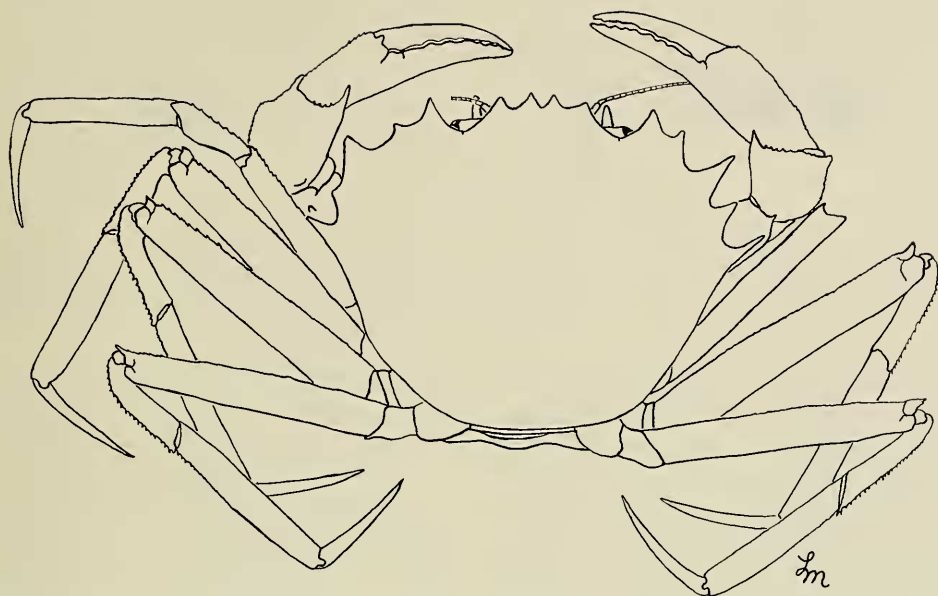


Fig. 3. *Geryon inghami*, male holotype, cl 64 mm, dorsal view.

distinct line of tubercles on the suborbital margin; the frontal teeth are larger; the fourth anterolateral tooth is much larger; the second and fifth anterolateral teeth are stronger; the longitudinal carina on the outer surface of the palm of the cheliped is more distinct, and, in the female, the inner surface of the palm is much more granular. Ingle (1985:95) noted that in *G. gordonae* the anterolateral spines of the carapace are smaller and blunter with increasing size; this trend is not at all apparent in the available material of *G. inghami*. All of the anterolateral spines of the carapace are present and well developed, even in the largest male examined.

In *G. gordonae* the fourth lateral tooth is very small even in small specimens; it may be essentially obsolete in adults.

The holotype of *G. inghami*, the illustrated specimen, has the fourth anterolateral tooth of the left side damaged; in other specimens it is as large as shown for the right fourth tooth in Fig. 3.

This species, apparently less common off Bermuda than *G. fenneri*, was found in

depths between 430 and 1900 fms (787–3477 m) (Luckhurst 1985).

Etymology.—This species is named for Mr. John P. (Sean) Ingham of Bermuda, whose interest in deep-water trapping in Bermuda led to its discovery.

The Status of *Geryon incertus* Miers (Fig. 6)

Miers (1886:224, pl. 16, fig. 3) described *Geryon incertus* from off the Bermudas (32°21'30"N, 64°35'55"W) in 435 fms (796 m). Miers's account was based on an immature specimen with a carapace length and width of 5 mm. Miers noted (1886:224) that "It [*G. incertus*] may belong to a genus of the Portunidae, near to *Bathynectes*, where I originally placed it." The status of Miers's species has remained uncertain since it was described. Chace (1940:39) remarked that "it obviously does not belong in this genus."

Geryon incertus, although characterized by Miers as having four anterolateral teeth, actually has but three primary teeth on each side, as shown in Miers's original figure (pl.

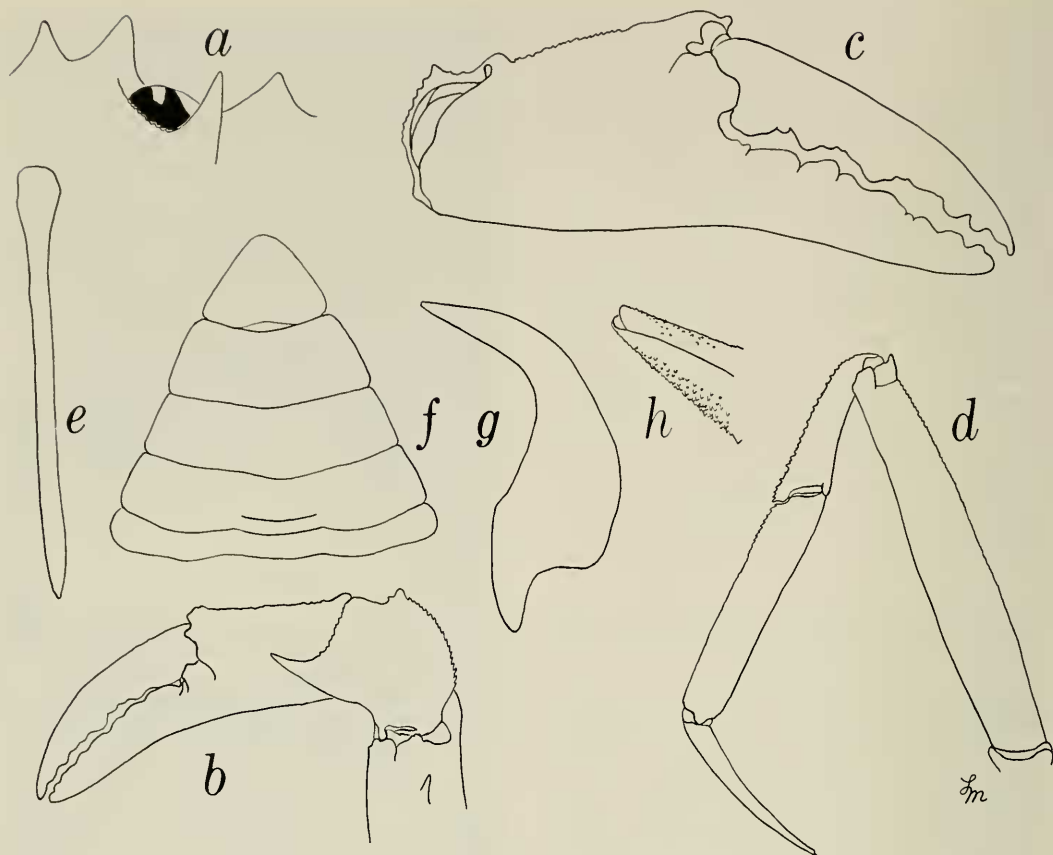


Fig. 4. *Geryon inghami*, male holotype, cl 64 mm: a, Suborbital margin; b, Cheliped; c, Chela; d, Fifth pereopod; e, Dactylus of fifth pereopod, dorsal view; f, Telson; g, Gonopod; h, Tip of gonopod.

16, fig. 3), parts of which are reproduced here in Fig. 6. The posteriormost two teeth have a small denticle between them. This denticle is shown on both sides in Miers's figure, but was described as occurring on one side and being obsolete on the other.

In his original account, Miers remarked (1886:225): "From all the described species of this genus, *Geryon incertus* is distinguished by the form of the front, and from the typical species of *Bathynectes*, Stimpson, not only by this character, but also by the structure of the basal antennal joint, which is free and not united with the lateral subfrontal process." The basal joint of the antenna also is free in specimens of *B. longi-*

spina Stimpson from off New Jersey and in our material of *Geryon* (Fig. 5) as well.

R. W. Ingle of the British Museum (Natural History) (in litt.) examined the type of *Geryon incertus* at our request, and pointed out similarities between it and juveniles of *B. longipes* (Risso, 1816), reported in Ingle and Rice (1984). A comparison of the figure of the carapace of the type of *G. incertus* in the collections of the British Museum (Natural History) (Fig. 6a) with that of a juvenile of *B. longispina* (Fig. 7) from off New Jersey reveals that they share many similarities, even to the pattern of granulation on the carapace. At the size figured by Miers, the lateral spine of the carapace has not yet be-

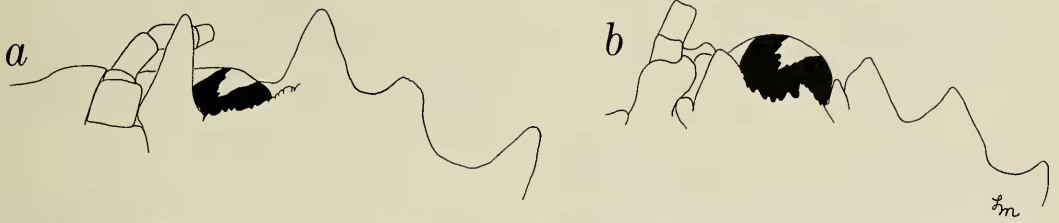


Fig. 5. Ventral view of orbit and antenna in: a, *G. inghami*, male holotype, cl 64 mm; b, *Bathynectes longispina*, male, cl 45 mm, off New Jersey (USNM 185422).

gun to enlarge in relation to the other spines. We consider *Geryon incertus* Miers, 1886, to be a subjective junior synonym of *Bathynectes longispina* Stimpson, 1871.

Until recently, *Bathynectes longispina* was identified with the East Atlantic species then known as *B. superbus* (Costa, 1853). Manning and Holthuis (1981:80) pointed out that the East Atlantic *B. superbus* was a junior synonym of *B. maravigna* (Prestandrea, 1839) and that material from the West Atlantic until then identified with *B. superbus* actually should be known as *B. longispina* Stimpson, 1871.

Bathynectes longispina has not been recorded from Bermuda as an adult. Williams and Wigley (1977:11) noted that it was known from Martha's Vineyard to the Yucatan Channel. Two specimens were sent to one of us (RBM) for identification by W.

Sterrer, then Director of the Bermuda Biological Station. They were taken a few miles south of Bermuda in May 1981, in about 500 meters. Both specimens are males, with carapace lengths of 32.7 and 41.5 mm and carapace widths of 59.6 and 72.9 mm, respectively. A second lot of this species from Bermuda was found in the Smithsonian collections (USNM 169237). It comprises two females with carapace lengths of 28.5 and 37.2 mm and carapace widths of 52.0 and 68.2 mm, respectively. These latter specimens were collected in 400 fathoms (732 meters) by R. T. Abbott on 26 September 1974.

Bathynectes longispina recently has been recorded from localities off North Carolina (Williams, McCloskey, and Gray 1968), in the Chesapeake Bight (Lewis and Haefner 1977), the Middle-Atlantic Bight (600 spec-

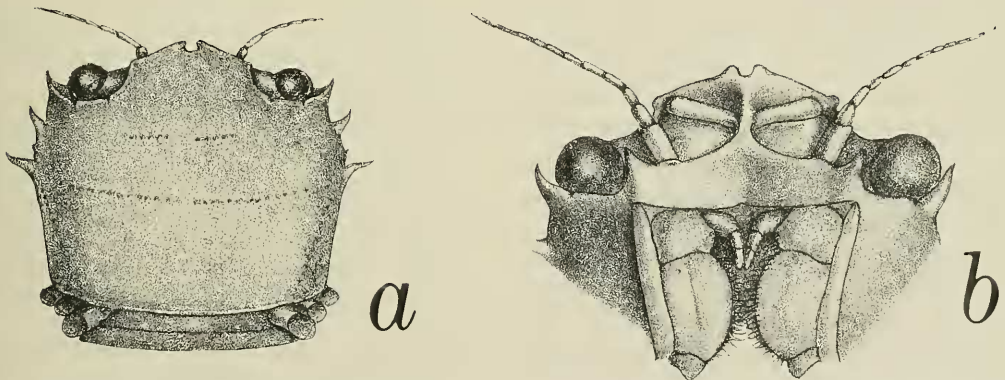


Fig. 6. Holotype of *Geryon incertus* Miers, cl ca. 5 mm: a, Dorsal view; b, Suborbital margin. (From Miers 1886: pl. 16, fig. 3, 3a).

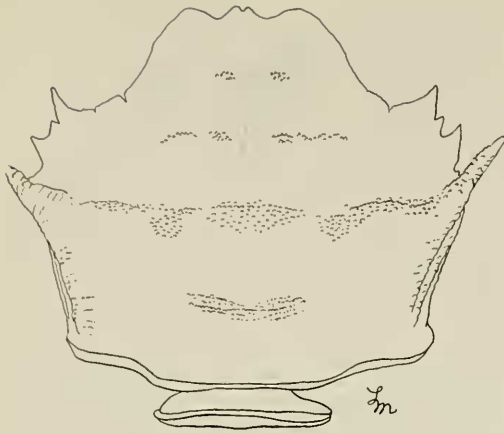


Fig. 7. Carapace of juvenile *B. longispina*, cl 5.0 mm, off New Jersey (USNM 185623).

imens at 33 stations in depths between 90 and 751 meters; Wenner and Boesch 1979), the middle Atlantic shelf (Bowen et al. 1979), and the Straits of Florida in 174 to 403 m (Soto 1985). It apparently is fairly common in moderate depths off the eastern United States (see Rathbun 1930:28, for earlier records), and its occurrence in Bermuda is not too surprising.

Acknowledgments

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